

US Patent Application 10/573,600
Response to NFOA dated January 22, 2010
April 22, 2010

CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1 - 44. Cancelled.

45 (Currently Amended). A method of delivering a transgene to a cell, said method comprising the step of contacting the cell with a non-naturally occurring AAV according to claim 60 59, wherein said rAAV comprises the transgene.

Claims 46 – 59. Cancelled.

60 (Currently Amended). A non-naturally occurring adeno-associated virus (AAV) comprising AAV vp1, AAV vp2 and AAV vp3 capsid proteins an AAV9 capsid, wherein the AAV9 capsid comprises, wherein at least one of said capsid proteins is an AAV9 capsid protein selected from the group consisting of:

vp1 capsid protein, amino acids (aa) 1 to 736; of SEQ ID NO:123;

vp2 capsid protein, aa 138 to 736, SEQ ID NO: 123 ; and

vp3 capsid protein, aa 203 to 736, SEQ ID NO: 123 , said AAV further comprising a minigene having AAV inverted terminal repeats and a transgene comprising a heterologous gene operably linked to regulatory sequences which direct its expression in a host cell.

61 (Previously Presented). The non-naturally occurring adeno-associated virus (AAV) according to claim 60, wherein the AAV9 capsid protein is encoded by a nucleic acid sequence selected from the group consisting of:

vp1, nucleotides (nt) 1 to 2211;

vp2, nt 411 to 2211; and

vp 3, nt 609 to 2211;

wherein the nucleotides numbers are of AAV9, SEQ ID NO: 3.

62 (Currently Amended). A composition comprising ~~a~~ the non-naturally occurring AAV according to claim 60 and a physiologically compatible carrier.

63 (Currently Amended). A method of delivering a transgene to a cell, said method comprising the step of contacting the cell with ~~a~~ the AAV according to claim 65, wherein said minigene comprises the transgene.

64 (Currently Amended). The method according to claim 63, wherein the transgene is selected from the group consisting of: ~~a~~ low density lipoprotein (LDL) receptor, ~~a~~ high density lipoprotein (HDL) receptor, ~~the~~ a very low density lipoprotein (VLDL) receptor and a scavenger receptor.

65 (Currently Amended). An adeno-associated virus (AAV) comprising an AAV9 capsid, wherein the AAV9 capsid comprises AAV vp1, AAV vp2 and AAV vp3 proteins, wherein said proteins comprise an amino acid sequence is at least 95% identical to the amino acid sequence of SEQ ID NO: 123 over amino acids 203 to 736 of SEQ ID NO: 123 and wherein said AAV further comprises a minigene having AAV inverted terminal repeats and the ~~a~~ transgene comprising a heterologous gene operably linked to regulatory sequences which direct its expression in an host cell.

66 (Currently Amended). The adeno-associated virus according to claim 65 wherein the AAV capsid proteins comprise an amino acid sequence is at least 95 97% identical to the amino acid sequence of SEQ ID NO: 123 over amino acids 203 to 736 of SEQ ID NO: 123 and at least 90% identical to the amino acid sequence of SEQ ID NO: 123 over amino acids 1 to 736.

Claim 67. Cancelled.

68 (Currently Amended). The AAV capsid protein according to claim 70 67, wherein one of the AAV protein fragments is from AAV2.

69 (Currently Amended). The AAV capsid protein according to claim 70 67, wherein the AAV9/HU.14 capsid protein fragments comprise aa185-198; aa260-273; aa381-383; and aa670-706 amino acids 185 to 198; amino acids 260 to 273; amino acids 381 to 383; and amino acids 670 to 706 of SEQ ID NO: 123.

70 (New). The AAV according to claim 65, wherein the AAV9 capsid has a vp3 protein of 203 to 736 of SEQ ID NO: 123.

71 (New). The AAV according to claim 65, wherein the capsid comprises an amino acid sequence having at least 97% identity over the full-length of the vp3 of the AAV9 capsid.

72 (New). The AAV according to claim 65, wherein the capsid comprises an amino acid sequences having at least 97% identity over the full-length of the AAV9vp1 protein of SEQ ID NO: 123.

73 (New). The AAV according to claim 64, wherein the capsid comprises a capsid protein having an amino acid sequence of 100% identity over the full-length of the AAV9 vp3 protein of SEQ ID NO:123.

74 (New). An adeno-associated virus (AAV) having a chimeric capsid which comprises AAV vp1, AAV vp2 and AAV vp3 capsid proteins, wherein at least one of said capsid proteins comprises one or more of AAV9 capsid protein fragments selected from the group consisting of amino acids 25-28, amino acids 137 to 143, amino acids 154 to 156, amino acids -173, amino acids 182 to 186, amino acids 185 to 198, amino acids 260 to 273, amino acids 262 to 264; amino acids 261 to 274; amino acids 262 to 274; amino acids 381 to 383, and amino acids 670-706 of SEQ ID NO: 123.

75 (New). An adeno-associated virus (AAV) having a chimeric capsid which comprises AAV vp1, vp2 and vp3 capsid proteins, wherein at least one of the AAV capsid proteins is an AAV9 capsid protein which comprises one or more fragments of SEQ ID NO: 123 selected from amino acids 1 to 184, amino acids 199 to 259; amino acids 274 to 446; amino acids 603 to 659; amino acids 670 to 706; and amino acids 724 to 738 of SEQ ID NO: 123.

76 (New). An adeno-associated virus (AAV) having a chimeric capsid which comprises AAV vp1, vp2 and vp3 capsid proteins, wherein at least one of the AAV capsid proteins comprises one or more of the AAV serotype 9 capsid protein hypervariable regions selected from the group consisting of amino acids 185 to 198, amino acids 260 to 273; amino acids 447 to 477, amino acids 495 to 602, amino acids 660 to 669, and amino acids 707 to 723 of SEQ ID NO: 123.